

30 YEARS OF ENVIRONMENTAL PROGRESS



auto emissions standards • U. S. Environmental Protection Agency created with 5,000 employees and \$1.3 billion
pollution, improves sewage treatment • DDT is banned in U.S. • Manufacturers required to register pesticides &

CLEAN WATER

“When the well’s dry, we know the worth of water.”

- Ben Franklin, “Poor Richard’s Almanac”

From California’s San Gabriel Valley to Catoctin, Maryland to Katonah, New York, people learned the worth of water the hard way. But their wells did not run dry; they were closed and capped, the underground water they tap contaminated with pesticides, gasoline and dry cleaning fluids.

Water pollution has by no means been limited to groundwater. Thirty years ago, many of our rivers and streams were open sewers, choking on everything from human waste to highly toxic industrial discharges. New York City alone pumped a half billion gallons of raw sewage into the harbor every day. PCBs were dumped in the Hudson, dioxins in the Passaic.

As pollution levels grew, so did the impacts. “No swimming” signs became the norm. Lake Erie was dying. The Hudson’s commercial striped bass fishery, once valued at \$40 million a year, was closed. Shad no longer ran up the Delaware River, and it became illegal to sell oysters from Oyster Bay, Long Island. And then, in June 1969, Cleveland’s Cuyahoga River caught fire. For the third time.

The damning image of a river in flames is credited by many for

passage of the Federal Water Pollution Control Act of 1972. EPA set standards to regulate the discharge of industrial and municipal waste - so-called end-of-the-pipe pollution. With it came significant federal funding to help localities improve wastewater treatment.

From New York City to Newark, Buffalo to Bayamón, EPA has invested more than \$11.5 billion in the Region since 1972 building and upgrading sewage treatment facilities. One of the largest projects in the nation was built by the Passaic Valley Sewerage Commissioners to treat wastewater from Newark and 46 surrounding municipalities. The vast plant, completed in 1981, provides secondary wastewater treatment for 1.3 million people.

Improvements in municipal wastewater treatment have been matched by progress in the private sector. Nationally, more than 30,000 major industrial dischargers pre-treat their wastewater before it enters local sewers. Together, some 75 percent of toxic discharges, including heavy metals and PCBs, are prevented.

Photo Credit: Ohio EPA



1969: Cuyahoga River on fire.

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Increasing Levels of Dissolved Oxygen in the Delaware River

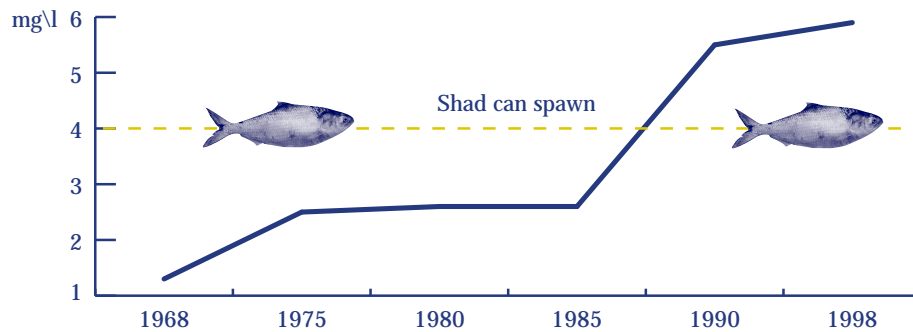


Chart Credit: C. Sebastian/EPA

The return on this massive public and private investment has been incalculable. Today, you can swim in the Hudson as far south as northern Manhattan. Toxics entering the Niagara River have been cut 50%. Lake Erie is recovering. More than 3,600 acres of the Atlantic off New Jersey's coast are open for shell fishing for the first time since 1975. Shad can once again reach their spawning grounds up the Delaware River. Nationwide, 60% of America's rivers and lakes are now suitable for fishing and swimming.

Drinking Water at Risk

Isolated outbreaks in the 50s and 60s of waterborne diseases such as dysentery and infectious hepatitis spurred passage of the Safe Drinking Water Act in 1974. Under the act, EPA established the first national standards for community water supply systems.

The Region has 3,590 community water systems, ranging from the vast New

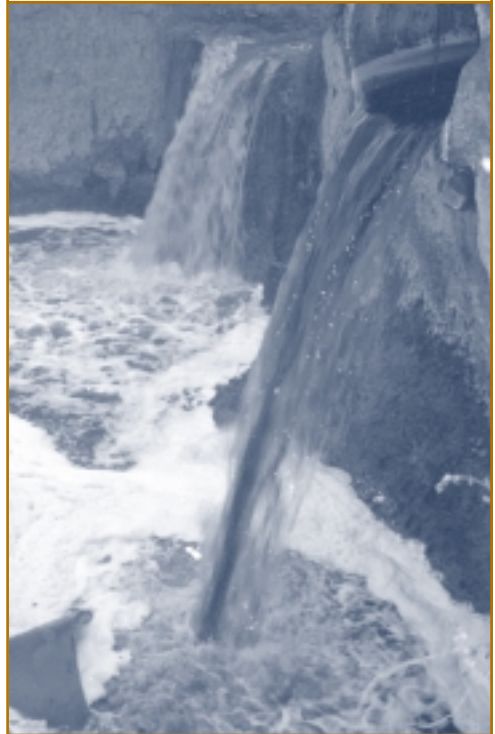
York City system, supplying drinking water for nine million people, to thousands of small systems, which can be as simple as a well servicing a handful of mobile homes. The safety of their drinking water depends on a combination of water treatment - filtration and/or disinfection - and protection of the water's source.

EPA determines the minimum level of treatment required. In addition, the Agency has set maximum allowable levels for 90 contaminants, ranging from nitrates and mercury to pesticides and benzene, which can be found in drinking water. And because lead is known to affect intellectual and behavioral development in children, EPA banned the use of lead pipe and lead solder.

More than 60% of the Region's drinking water comes from lakes, rivers and reservoirs. All surface water is disinfected, usually with chlorine. Much is also filtered, but a small number of municipalities that have protected their water

sources have been able to avoid the cost of filtration.

Because soil acts as a natural bacterial filter, most well and spring water does not require treatment. Some pollutants, however, make their way through the earth. One gallon of leaked or spilled gasoline can contaminate one million gallons of underground drinking water. Once contaminated, groundwater is difficult, often impossible to purify. People from Riverhead, Long Island to Ridgewood, New Jersey have lost wells because of gasoline contamination. On St. Thomas in the water-scarce Virgin Islands, drinking water must now be trucked in after 17 wells were lost to a 108-



End-of-pipe pollution was an early target.

acre plume of contamination. To attack groundwater contamination, EPA established standards for underground storage tanks. Gas stations and other affected businesses were given ten years to upgrade or remove tanks. In Region 2, roughly 75 percent met the December 1998 deadline; compliance is now over 90 percent.

The greatest source of pollution to the nation's waters today is so-called non-point source - contaminants being carried off the land by rain, snow melt and excess irrigation. Agricultural runoff affects 70 percent of our rivers and streams. Pollutants also flow off streets and parking lots, lawns and golf courses. EPA is working with the states to create plans to better control run-off pollution.

As good as today's water treatment technology is, it still has limits. Surface water is vulnerable to many types of contamination, from road spills to septic tank overflows. As development in a watershed increases, the quality of its water invariably worsens. Boston and Atlanta have both abandoned reservoirs because development-related pollution surpassed the limits of treatment technology. Protecting water sources is a critical part of providing safe drinking water.

New York City's water, serving 9 million people, has never

been filtered. The vast reservoir system collects 550 billion gallons of water from three upstate watersheds covering some 2,000 square miles. But development - and its correlated pollution - is beginning to threaten the quality of the water. By federal law, all reservoir water must be filtered unless stringent controls are in place to protect its quality. Development in the Croton Watershed, closest to the city, reached the point at which water quality was threatened. EPA has ordered New York City to filter Croton water. And concerned that the same thing would happen to the huge upstate Catskill/Delaware reservoirs, the Agency required the city to show it could protect the Cat/Del watersheds or face filtration.

But there was opposition. The many small towns located in the two watersheds did not want the big downstate city telling them what to do. With EPA's negotiating help, a unique economic-environmental partnership was crafted that can safeguard Cat/Del water quality well into the next century. Upstate towns agreed to control the impacts of development. New York City is buying - and paying taxes on - critical buffer land around the reservoirs. In addition, the city is investing heavily in upstate infrastructure, helping rural towns upgrade wastewater treatment plants located in the

watersheds. In all, New York City will spend \$1 billion on watershed protection. And it's getting a great bargain; the capital cost of filtration for the Cat/Del system could be upwards of \$6-8 billion.

The wisdom of protecting drinking water sources was tragically underscored by a 1993 outbreak of waterborne disease in Milwaukee. *Cryptosporidium* is a tiny protozoan, highly resistant to chlorine and difficult to filter out. Spring rains washed animal waste into the sources of Milwaukee's drinking water. Despite state-of-the-art treatment facilities, crypto got into the city's water supply. More than 400,000 residents were affected; 103 people died.



Drinking water protection starts here.

While more than 85 percent of all Americans now have safe, healthy drinking water, President Clinton has challenged EPA to raise this to

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100 percent. In Puerto Rico, many people living in rural areas still drink water that is neither chlorinated nor filtered. EPA is working to provide low-cost, low-tech chlorinators for rural well systems and to provide alternatives for the people still drinking untreated surface water.

Along with protecting drinking water, EPA believes that people should be fully informed about the water they drink. The Agency requires local water companies to



Public outcry over beach washups helped end ocean dumping.

and toilet. An armada of barges ferried everything from sewage sludge to cellar dirt - and, until 1934, New York City garbage - out to sea.

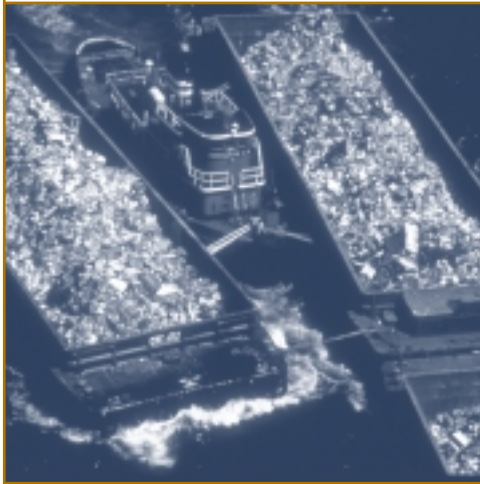
At its worst, more than 8 million tons a year of sewage sludge was dumped at sea by New York City, two New York counties and six Northern New Jersey sewage authorities. New Jersey industry shipped nearly 1.5 million tons a year of industrial waste including sulfuric and other acids for disposal at sea. Wooden debris from the harbor's rotting piers was even hauled to sea and burned on barges.

Most ocean disposal was gradually phased out, but EPA's early efforts to end sludge dumping were blocked by legal action. The agency was able to move sludge disposal from shallow, near-shore waters to deeper water 120 miles offshore. One barge company thought that was too

far to go; General Marine Transport was discovered dumping sludge in Newark and Raritan Bays and just off Sandy Hook, New Jersey. The owner, Evelyn Berman Frank, charged with a long list of environmental violations, pled guilty in 1990 and ultimately went to prison.

And then, during the summers of 1987 and 1988, like a monster sick to its stomach, the sea regurgitated medical waste and other trash onto the beaches of New Jersey and New York. News stories told of kids finding hypodermic needles in the sand. Beachgoers, fearful of possible infection, stayed home; shoreline communities put their tourism loss at \$2 billion.

Most of the trash had washed out to sea through storm sewers, but public perception tied the washups to ocean dumping. Congress responded to the public outcry. Armed



For years, trash was dumped in the ocean.

provide customer information about the quality of their water. Suppliers must also provide health information to protect children, the elderly and people with weak immune systems.

An End to Ocean Dumping

By the mid-1900s, coastal cities and counties were using the ocean as a convenient combination of town dump

REGION 2 - NEW JERSEY • NEW YORK • PUERTO RICO • U.S. VIRGIN ISLANDS • TRIBAL NATIONS



Street litter often ends up on the shore.

with the Ocean Dumping Ban Act, EPA worked hard to quickly end the dumping of sewage sludge and industrial and medical waste. Area sludge barges made their last trip to sea in June 1992.

Today, stormwater remains a challenge. When storm and sanitary sewer systems are combined - and most are - a summer thunderstorm can send three to four times more water to local wastewater treatment plants than they can handle. As a result, raw sewage and floating trash are flushed directly into local streams and rivers. The problem of CSOs - combined sewer overflows - is being addressed by actions such as increasing stormwater storage capacity and screening outfalls to catch floating materials.

EPA and the Army Corps of Engineers also attacked the problem of beach washups with boat and helicopter

patrols. Floating trash is spotted and scooped up before it can hit the beach. An EPA "Clean Streets/Clean Beaches" program reminds people that street litter often ends up on local beaches. As a result, there has been only one trash-related beach closing in either New Jersey or New York since the early 1990s.

Dredging is another challenge. For nearly a century, dredged sediments were taken off the New Jersey coast for disposal. Dispute over contamination in these sediments led to legal gridlock that presented a serious threat to the harbor economy. In September 1997, agreement was reached to close the Mud Dump Site, the disposal area at the time, and to cover contamination from past disposal activities in this and the surrounding areas with remediation sediments.

Sediments formerly disposed of in the ocean are now being



Spilled oil is costly and destructive.

put to productive use as construction fill. EPA is helping develop technologies to decontaminate dredged sediments having higher levels of contamination, which are currently sent to designated landfills.

Worldwide, the greatest threat to the coastal environment is oil. When the Exxon Valdez rammed Bligh Reef in March 1989, 10 million gallons of North Slope crude contaminated nearly 500 miles of once pristine shoreline. Cleanup took three years and cost \$2.1 billion, but the effects on wildlife are still being felt. This Region's worst spill occurred in 1994, when an 800,000-gallon barge spilled oil just outside San Juan Harbor.

Nowhere is the need to protect the ocean environment greater than in Puerto Rico and the U.S. Virgin Islands. There, water quality and the fragile reef systems that protect the islands are both critical to tourism, which helps build the local economic base. EPA has invested nearly \$750 million to significantly increase the number of homes in Puerto Rico hooked to municipal sewers and to eliminate major discharges of raw sewage. A major new sewage treatment facility is nearing completion on St. John and construction will start shortly on another on St. Thomas.